

(PCT Article 36 and Rule 70)

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/006467

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
  - ☐ This report is based on translations from the original language into the following language \_\_\_\_\_ which is the language of a translation furnished for the purposes of:
    - ☐ international search (Rule 12.3 and 23.1(b))
    - ☐ publication of the international application (Rule 12.4)
    - ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
  - ☐ the international application as originally filed/furnished
  - ☒ the description:
    - pages 1-19 \_\_\_\_\_ as originally filed/furnished
    - pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
    - pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
  - ☒ the claims:
    - nos. \_\_\_\_\_ as originally filed/furnished
    - nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19
    - nos.\* 1-21 received by this Authority on 14.05.2005 with letter
    - nos.\* \_\_\_\_\_ received by this Authority on of 11.05.2005
  - ☒ the drawings:
    - sheets 1/7-7/7 \_\_\_\_\_ as originally filed/furnished
    - sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
    - sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
  - ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
  - ☐ the description, pages \_\_\_\_\_
  - ☐ the claims, nos. \_\_\_\_\_
  - ☐ the drawings, sheets/figs \_\_\_\_\_
  - ☐ the sequence listing (*specify*): \_\_\_\_\_
  - ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
  - ☐ the description, pages \_\_\_\_\_
  - ☐ the claims, nos. \_\_\_\_\_
  - ☐ the drawings, sheets/figs \_\_\_\_\_
  - ☐ the sequence listing (*specify*): \_\_\_\_\_
  - ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1. Statement			
Novelty (N)	Claims	_____	YES
	Claims	1-21	NO
Inventive step (IS)	Claims	_____	YES
	Claims	1-21	NO
Industrial applicability (IA)	Claims	1-21	YES
	Claims	_____	NO
2. Citations and explanations (Rule 70.7)			
1	The application does not satisfy the requirements of PCT Article 6 because claims 1, 15 and 16 are not clear.		
1.1	The term "Moiré" is used in claim 1 but not in the description. Consequently, claim 1 is not supported by the description.		
	<p>The term "Moiré" is fairly broad. One definition is that of an interference pattern formed when a plurality of grids are overlaid at an unfavourable grid angle" (translated from <i>Der Brockhaus: Naturwissenschaft und Technik</i> (Brockhaus natural science and technology reference dictionary), Vol. 2, page 1343, Bibliographisches Institut &amp; F.A. Brockhaus AG, Mannheim, Spektrum Akademischer Verlag GmbH, Heidelberg, 2003). The terms "interference" and "unfavourable" are subjective. The expression "Moiré pattern" is interpreted to encompass any overlay of at least two patterns. Without a precise definition in the description, it is not possible to interpret it more narrowly.</p>		

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Moreover, a pattern with only one line grid is not a Moiré pattern. Consequently, the wording "the Moiré pattern [has] at least one line grid" is inherently inconsistent.

It should further be noted that the expression "phase-shifted" is very broad. Whenever two line grids differ in any way, they are phase-shifted.

Furthermore, the feature including the substructuring function (lines 25-29) is not clear. One possible substructuring function is  $f(x)=x$ . Consequently, the expression in the last four lines of the claims does not restrict the subject matter, and therefore the claim is not concise, which makes it unreasonably difficult for a third party to determine the scope of protection sought. The wording "the additional information is encoded in the flat area" does not restrict the subject matter, *inter alia* because any information can be encoded in any subject matter.

1.2 It is not clear what the technical features of claims 15 and 16 might be.

2 Reference is made to the following documents:

D1: DE 100 44 465 A (GIESECKE & DEVRIENT GMBH) 21  
March 2002 (2002-03-21)

D2: WO 03/009225 A (MATEJKA FRANTISEK; RYZI ZBYNEK  
(CZ); DRINKWATER KENNETH JOHN (GB); OP) 30  
January 2003 (2003-01-30)

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D3: EP-A-0 520 363 (CANADIAN BANK NOTE CO LTD) 30

December 1992 (1992-12-30)

D4: US-A-5 379 131 (YAMAZAKI SATOSHI) 3 January

1995 (1995-01-03)

D5: US-A-5 760 961 (STAUB RENE ET AL) 2 June 1998

(1998-06-02).

- 3 The subject matter of claims 1-21, as interpreted at present (see point 1.), is not novel (PCT Article 33(2)).

*Claim 1:*

Document D1 describes (see in particular column 1, lines 1-58, column 9, line 37, to column 10, line 25, figure 4, column 11, lines 1-36, figure 5) an optical security element having a substrate layer, wherein in parts of a flat area of the substrate layer a first microstructure is moulded into the substrate layer for producing a first optically recognizable effect, wherein the first microstructure is a diffraction structure, wherein the flat area is divided into microscopically small pattern areas (30, 31, 32, 33, 34) and a background area (35 + in figure 1, everything not 2), the first microstructure being moulded in the pattern areas but not the background area, wherein the microscopically small pattern areas are disposed in the flat area in the form of a Moiré pattern (6 + 13) in which hidden information (12) readable using an assigned verification element is encoded as a security feature, wherein the Moiré

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pattern has two line grids (6, 13) having a plurality of lines 40 to 200  $\mu\text{m}$  apart from each other (column 2, lines 43-45) and parts of the line grid are phase-shifted in order to produce the hidden information, and wherein the microscopically small pattern areas are further substructured in accordance with a substructuring function ( $f(x) = x$ ), which describes a microscopic substructuring of the Moiré pattern which serves as a further security feature and encodes additional information in the flat area.

Consequently, the subject matter of claim 1 is not novel.

## Observations:

- the term "diffraction structure" is broad: any non-level surface is a diffraction structure;
- the term "microstructure" is broad; in document D1 the line grids are a microstructure since the lines are between 25  $\mu\text{m}$  and 300  $\mu\text{m}$  wide (column 2, lines 43-45).
- the verification element is not part of the claimed subject matter; it is merely necessary for the hidden information to be readable by a verification element;
- the phrase "hidden information" is broad; it can include any information not easily visible with the naked eye.

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The subject matter of claim 1 is also known from documents D2 (see in particular pages 20-22; phase-shifted: "[...] the positions of individual elements are subtly moved from a regular array position by a small imperceptible amount" page 21, bottom), D3 (see in particular column 2, line 47, to column 4, line 21; pattern areas: text, figure 1, background area: white, figure 1; see column 3, line 5) or D5 (see in particular column 7, lines 3-54; pattern areas 13, background area 14 in figure 4; "surface portions" (column 7, line 15) are phase displaced).

Observation: in document D5 the hidden information is encoded by the bar code.

*Claims 2-21:*

The subject matter of claims 2-5 and 10-21 is known from document D1, the subject matter of claims 2, 3, 6, 7, 9 and 11-21 is known from document D2, the subject matter of claims 2, 4, 9 and 11-21 is known from document D3, and the subject matter of claims 2-8 and 11-21 is known from document D5.

- 4 The present application does not meet the requirements of PCT Article 33(3) because the subject matter of claim 1, as interpreted at present (see point 1.) does not involve an inventive step.

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Document D4 is considered the closest prior art. It discloses (see in particular column 4, lines 41-64; pattern areas 2<sub>1</sub> to 2<sub>4</sub> in figure 1, background area the remainder, figure 1; Moiré pattern (a+b) figure 2) an optical security element from which the subject matter of claim 1 differs in that the distance between the lines in the line grid ranges from 40 to 200 µm.

Consequently, the problem to be solved by the present invention is that of determining an appropriate distance between the lines.

The solution proposed in claim 1 of the present application cannot be considered inventive, for the following reasons (PCT Article 33(3)):

This feature was already used for the same purpose with a similar security element (see documents D1, D2, D3 and D5). For a person skilled in the art wishing to achieve the same purpose with a security element according to document D4 it would be straightforward to apply the feature with corresponding effect to the subject matter of document D4, and in this way to arrive at an optical security element according to claim 1, without thereby being inventive. Consequently, the subject matter of claim 1 does not involve an inventive step (PCT Article 33(3)).



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